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(56) **References Cited**

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See application file for complete search history.

(57) **ABSTRACT**

A process and system for separating butenes and butanes by extractive distillation using a polar solvent is disclosed. The process may include: contacting a hydrocarbon mixture including butanes and butenes with a lean solvent mixture in an extractive distillation column to form an enriched solvent fraction comprising butenes; recovering an overheads fraction comprising butanes and a bottoms fraction from the extractive distillation column; feeding the bottoms fraction to a stripper including a stripping section and a wash section; recovering the lean solvent mixture as a bottoms fraction and a stripper overheads fraction comprising butenes and water from the stripper; condensing the overheads fraction to form a water fraction and a product butenes fraction; feeding water as reflux to a top of the stripper wash section; feeding at least a portion of the condensed water fraction intermediate the top and bottom of the stripper wash section as a second reflux.

12 Claims, 3 Drawing Sheets

